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PLATE III.—Diagrammatic Sectional Drawing of Lapidary's Lathe for Petrographical Work. *T.*, Top of table ; *u.u.*, upright supporting legs ; *J.*, middle joist ; *tr.*, treadle ; *cd.*, cord of treadle passing over pulley wheel *(p.w.)* to crank *(cr.)* of fly-wheel *(f.w.)*; *st.*, strap from fly-wheel to spindle bearing wheel *(sp.w.)*; *Sp.*, upper end of spindle ; *Sp'.*, lower part of spindle resting on bearing *(Sp. B)*; *ub.*, and *lb.*, upper and lower bearings of fly-wheel, sunk in sliding-frame *(fr.)*, which can be regulated by wooden screw *(w.s.)*. The lower bearing, along with the inferior arm of the sliding frame, move in a limited groove in the joist *(J)*, which is specially mortiсed at this part. ... ...

PLATE IV.—Enlarged Diagram of Grinding Apparatus. *i.*, Circular brass ring bordering aperture for upper end of spindle *(Sp)*; it is provided with an upward projecting rim. The brass cap *(c)* acts as a steadying bearing to the spindle head *(Sp.)*; *i'.*, circular metal ring with upward projecting rim fastened on edge of central aperture of waste emery box *(b)* : the brass protecting cap *(p)* comes over the edge of this rim,

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WORKING MEASUREMENTS.

Table	Height	38 inches.
	Length	40 inches.
	Width	20 inches.

Distance of joist *(J)* from top of table ... ... 6 inches.
Distance of spindle from nearest supporting leg *(u)* 5 inches.
Diameter of fly-wheel ... ... 16 inches.
Diameter of spindle-bearing wheel ... ... $6\frac{1}{2}$ inches.
Diameter of pulley wheel ... ... $5\frac{1}{2}$ inches.
Length of arms of sliding frame *(fr)* ... ... 10 inches.
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